

CLAIMS

1. A telephone call restriction apparatus for connection to a telephone line, comprising:

a controller having memory for storing call restriction data and at least one call restriction rule; and

5 a transceiver having conductors for receiving tone signals from and sending tone signals to the telephone line and conductors for sending digital signals to and receiving digital signals from said controller,

wherein said controller is programmed to detect that a call inhibition condition exists based on digital signals received from said transceiver, said call restriction data and said call restriction rule, and to cause an interference on said telephone line in response to detection of a call inhibition condition.

2. The apparatus as recited in claim 1, wherein said transceiver sends a tone signal to the telephone line in response to said controller detecting that a call inhibition condition exists.

3. The apparatus as recited in claim 2, further comprising a circuit that increases the intensity of said tone signal on said the telephone line in response to said controller detecting that a call inhibition condition exists.

4. The apparatus as recited in claim 1, wherein said transceiver comprises a DTMF transceiver.

20 5. The apparatus as recited in claim 1, wherein said memory is nonvolatile.

25 6. The apparatus as recited in claim 1, further comprising a circuit for supplying power to said controller and to said transceiver only when a telephone off hook condition is detected on the telephone line.

7. The apparatus as recited in claim 1, further comprising a circuit for maintaining the interference on said telephone line until a telephone on hook condition of sufficient duration is detected.

5 8. The apparatus as recited in claim 1, further comprising a circuit for resuming the interference on said telephone line following a telephone off hook condition of insufficient duration.

9. The apparatus as recited in claim 1, wherein said controller comprises a microcontroller chip.

10. The apparatus as recited in claim 1, wherein said controller is further programmed to change its mode of operation from a call restriction mode to a programming mode in which said controller is programmable in response to receipt of digital signals representing a predetermined authorization code from said transceiver, said steps of detecting a call inhibition condition and causing an interference on said telephone line being performed in said call restriction mode.

15 11. The apparatus as recited in claim 10, wherein said controller is further programmed, when in said programming mode, to receive call restriction data from said transceiver and writing said call restriction data into said memory.

20 12. A method for programming a call restriction device connected to a telephone line, comprising the following steps:

establishing a connection between a telephone and a remote computer via the telephone line;

25 placing the call restriction device in a mode wherein the call restriction device is programmable;

sending signals representing call restriction data from the telephone onto the telephone line;

sending signals representing said call restriction data from the remote computer onto the telephone line; and

5 storing said call restriction data in the call restriction device so that the call restriction device, when in a call inhibition mode, will restrict calls on the telephone line in accordance with said stored call restriction data.

13. The method as recited in claim 12, further comprising the step of sending signals representing an authorization code from the telephone onto the telephone line prior to sending said signals representing call restriction data.

10 14. The method as recited in claim 12, further comprising the step of sending a voice prompt from the remote computer onto the telephone line, said voice prompt requesting input of call restriction data.

15 15. The method as recited in claim 13, further comprising the step of sending a voice prompt from the remote computer onto telephone line, said voice prompt requesting input of said authorization code.

16. A system comprising:

a telephone line;

a call restriction device connected to said telephone line and programmed to restrict calls on said telephone line in a call inhibition mode and to accept call restriction data in a programming mode;

20 a telephone connected to said telephone line; and

an interactive voice response system having an access number that is accessible via a public telephone switching network, wherein said interactive voice response system is programmed to perform the following steps:

sending a voice message requesting input of call restriction data while connected to said telephone line;

5 recognizing signals representing call restriction data returned via said telephone line following sending of said voice message requesting input of call restriction data; and

sending signals representing said call restriction data while connected to said telephone line.

17. The system as recited in claim 16, wherein said interactive voice response system is further programmed to perform the following steps:

10 sending a voice message requesting input of an authorization code while connected to said telephone line;

15 recognizing signals representing an authorization code returned via said telephone line following sending of said voice message requesting input of an authorization code; and

20 sending signals representing said authorization code while connected to said telephone line,

wherein said voice message requesting input of call restriction data is sent by said interactive voice response system only after detection of a predetermined signal indicating said authorization code is valid transmitted by said call restriction device.

25 18. The system as recited in claim 17, wherein said call restriction device is programmed to perform the following steps:

validating said authorization code sent by said interactive voice response system; and

changing modes from a call inhibition mode to a programming mode and sending said predetermined signal to said telephone line after

validation of said authorization code.

19. A method for programming a call restriction device connected to a telephone line, comprising the following steps:

5 establishing a connection between a computer and a destination station via the telephone line;

placing the call restriction device in a mode wherein the call restriction device is programmable;

inputting call restriction data into the computer;

10 sending signals representing the inputted call restriction data from the computer onto the telephone line;

sending signals representing said call restriction data from the remote computer onto the telephone line; and

15 storing said call restriction data in the call restriction device so that the call restriction device will operate in said call inhibition mode in accordance with said stored call restriction data.

20. A telephone call restriction apparatus for connection to a telephone line, comprising:

memory for storing call restriction data in digital format;

20 to said call restriction data; and

a converter for converting tone signals on the telephone line into digital signals and converting digital signals from the digital processor into tone signals;

25 wherein said digital processor is further programmed to detect that a dialed telephone number belongs to a category of restricted telephone

numbers and then restrict a call to a destination identified by said dialed telephone number in accordance with said call restriction data.

21. A telephone call restriction system comprising:

a telephone line;

5 a telephone connected to said telephone line;

a call restrictor connected to said telephone line; and

10 a computer communicative with said telephone and said call restrictor via said telephone line when a connection is established, said computer being programmed to automatically program said call restrictor based on call restrictions input via said telephone.

22. The system as recited in claim 21, wherein said computer is an interactive voice response system.

23. The system as recited in claim 21, wherein said call restrictor comprises:

15 a controller programmed to transmit first and second control signals in response to detection of a call inhibition condition;

a DTMF transceiver having a port for outputting DTMF signals in response to receipt of said first control signal from said controller; and

20 a circuit that increases the amplitude of the DTMF signals output from said port of said DTMF transceiver signals in response to receipt of said second control signal from said controller.

24. A method for preventing a telephone call to a restricted destination station, comprising the steps of:

monitoring a telephone line connected to a telephone;

detecting that a telephone number dialed on the telephone is restricted; and

generating a high-intensity DTMF signal on the telephone line in response to said detecting step, said high-intensity DTMF signal having sufficient intensity to interfere with a telephone call on the telephone line.

5

25. A telephone call restrictor programmed with call restrictions and having a programming mode and a call restriction mode, comprising:

a controller that is programmable in said programming mode and that detects call inhibition conditions as a function of said call restrictions in said call restriction mode;

10 a DTMF transceiver having a port for outputting DTMF signals in both said programming mode and said call inhibition mode; and

15 a circuit that increases the amplitude of the DTMF signals output from said port of said DTMF transceiver signals, said circuit being active when said controller has detected a call inhibition condition and being inactive at other times.

10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95